U.S. Department of Transportation
National Highway Traffic Safety Administration

Memorandum

Subject: **TEST REQUEST**: 2002-2004 Fleetwood Towable Recreational Vehicle's (RV's) Wheel Mounting System Clamp Performance

Date: APR 23 2004

From: Kathleen C. DeMeter, Director
Office of Defects Investigation

Reply to Attn. of: NVS-214gtb
EA04-009

To: Michael Monk, Director
Vehicle Research and Test Center

This memorandum requests the Vehicle Research and Test Center (VRTC) to conduct testing as described below.

BACKGROUND:

The Office of Defects Investigation (ODI) is currently investigating wheel separations in "towable" (unpowered) Recreation Vehicles manufactured by Fleetwood (EA04-009). A separate investigation PE04-016 addresses similar issues occurring in similar vehicles manufactured by Jayco.

ODI suspects that the wheel separations that have occurred in Fleetwood vehicles have been caused by relaxation of the wheel retention clamp which imposes bending and shear forces on the wheel mounting studs overloading the studs and causing them to break.

Fleetwood and Jayco have recommended frequent re-torquing of the wheel mounting nuts during the assembly, delivery, early-life (several within the first 100 miles), and prior to each trip via a vehicle-mounted placard stating, "check wheel lugs before moving vehicle". ODI acknowledges that re-torquing is consistent with good maintenance practice but is concerned that the need to frequently re-torque may be compensating for underlying design, application, quality, and/or parts compatibility issues.

OBJECTIVE:

ODI engineering will work with VRTC engineers to develop the appropriate objectives and methods to investigate the relevant issues.

TEST EQUIPMENT AND PROCEDURE:

The test equipment needed and the procedure to be used will be developed the VRTC personnel in consultation with the engineer in charge of the investigation.

TEST VEHICLE(S):

The wheel separations have occurred early in the vehicle life, i.e., during delivery to the dealer or soon after initial use (first or second trip) by the first purchaser, which indicates that vehicles with limited time in service (i.e., before the wheel end has embedded, deformed, or seated with use, service and/or adjustment through re-torquing) would be the most appropriate vehicles for inspections and tests.

ADDITIONAL INFORMATION:

After experiencing 64 wheel separations, Fleetwood issued a Recall Notice (03V-047) advising 4,933 owners of model year 2002-2004 towable Fleetwood RVs to torque the wheel mounting nuts on their vehicles. Fleetwood has also provided information in response to an ODI inquiry in which Fleetwood states, "we have since concluded that the initial torque applied at the manufacturing facilities... was not a primary cause of the wheel separations... rather... the nature and characteristics of aluminum versus steel, what is typically referred to as gasket creep, embedment relaxation, vibrations loosening, and numerous other variables...[are contributing factors]."

Locating separated wheel evidence can be challenging because the separated wheel ends are seldom recovered and, when recovered, are frequently reinstalled in the vehicle and the broken studs and nuts are discarded during the repair servicing. Also, prior to this investigation, Fleetwood had not been aggressive in obtaining evidence or in dedicating engineering effort to this investigate this issue.

ODI suspects that the wheels and wheel end systems used by Fleetwood are similar to those used by a number of RV and commercial trailer manufacturers. Investigation findings could have implications for a number of these vehicle and wheel end equipment manufacturers.

The project engineer is Tom Bowman (Phone: 202-366-6961) who will discuss the details of the testing with your engineers.

FINAL REPORT:

ODI requests that a procedure be formalized within 2 months of receipt of this test request and that the test work and draft report be completed in 4 –6 months.